

REMARKS

Claims 1-12 are pending.

At page 3 of the Action, Claims 1-8, 11 and 12 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Igaki et al (US 7,026,654, "Igaki") in view of Natarajan et al (US 2005/0067949, "Natarajan").

Applicants submit that this rejection should be withdrawn because Igaki and Natarajan do not disclose or render obvious the present invention, either alone or in combination.

As recited in present Claim 1, the present invention is directed to

(feature A) an organic light-light conversion device comprising:

(feature B-1) a light sensing unit

(feature B-2) having a layer including a photo-conductive organic semiconductor that causes a photo-current multiplication phenomenon by light irradiation, and

(feature C-1) a light emitting unit

(feature C-2) having a layer including an electroluminescent organic semiconductor that emits light by current injection,

characterized in that

(feature D) at least one of the photo-conductive organic semiconductor and the electroluminescent organic semiconductor is a polymer semiconductor.

An organic light-light conversion device (**feature A** of the present invention) is a device which receives light from the outside at the light sensing unit of the device, conveys electric signal to the light emitting unit of the device, and emits light different from the received light to the outside from the light emitting unit of the device. That is, the organic light-light conversion device converts light to light through electricity.

Igaki discloses, for example, in Fig. 12,

(**feature P-1**) an optical semiconductor package having:

(**feature Q-1**) a light-receiving device 33 which was asserted to correspond to the above feature B-1 of the present invention, and

(**feature R-1**) a light-emitting device 21 which was asserted to correspond to the above feature C-1 of the present invention.

However, Igaki is silent about the structure of the unit and material used for the unit. In other words, Igaki does not disclose or suggest the claimed features B-2 and C-2 as well as the claimed feature D, as discussed above.

As an application of the optical semiconductor package (P-1), Igaki discloses a reflection-type encoder (column 5, line 36) and a sensor device designed for highly accurate optical measurement (column 6, lines 30-35).

The reflection-type encoder corresponds to a reflection-type sensor which detects displacement of an object to be measured by observing difference between emitted light and reflected light (scattered light). The emitted light is meant to be light emitted from the light-emitting device included in the encoder. The reflected light is meant to be light received at the light receiving device (light receiving part) separately provided on the sensor. The sensor device designed for highly accurate optical measurement is one embodiment of the reflection-type encoder.

Therefore, Igaki discloses a sensor device which emits light from the emitting device by electric signal from the outside (conversion of electricity to light), projecting the light to the outside object to be measured, receiving the reflected light or scattered light at the light-receiving

device (conversion of light to electricity) and taking electric signal out to the outside. In other words, Igaki discloses only sensor device converting electricity to electricity through light.

Further, Igaki discloses in the Abstract “a groove is provided between the light emitting device and the light-receiving device to thereby avoid rays of light from the light-emitting device to directly enter the light-receiving device.” It may be assumed that if light emitted from the light emitting device enters the light-receiving device in Igaki, accuracy of the sensor will be lowered. Therefore, it would be necessary for Igaki to avoid rays of light from the light-emitting device to directly enter the light-receiving device. The Abstract of Igaki implies that Igaki’s sensor device converts electricity to electricity through light.

That is, Igaki does not disclose or suggest the claimed feature A, a light-light conversion device capable of converting light to light through electricity.

In summary, Igaki does not disclose or suggest the claimed feature A (the organic light-light conversion device) and the material and structure of the light-receiving device and the light-emitting device (the claimed features B-2 and C-2). Further, Igaki does not teach the claimed feature D.

The Examiner contends that Natarajan discloses an organic electronic device (OLED light detector) of an organic polymer, which was asserted to correspond to the above-noted features B-2, C-2 and D, and that it would have been obvious to have a photo-conductive organic semiconductor and an electroluminescent organic semiconductor that is a polymer semiconductor because it will improve the device performance and device lifetime.

However, Natarajan discloses that there exists a need to *form a substantially uniform polymer layer in order to*, for example, *improve device performance and device lifetime*. See, paragraph [0006] of Natarajan.

That is, Natarajan does not teach or suggest that the use of polymer semiconductors improve the device performance and device lifetime.

Further, Igaki does not even disclose the use of organic compound in spite of inorganic compound as a material for the light-emitting device or the light-receiving device.

Therefore, one skilled in the art would not have been motivated to combine Igaki with the organic polymer of Natarajan.

Even if Igaki were combined with Natarajan, the present invention with the claimed feature A would not have been achieved.

Accordingly, the present claims are not obvious over Igaki in view of Natarajan. Reconsideration and withdrawal of the §103(a) rejection based on Igaki in view of Natarajan are respectfully requested.

At page 5 of the Action, Claims 1 and 11 [1-5, 8, 11 and 12] have been rejected under 35 U.S.C. § 102(a) as allegedly being unpatentable over Kalveram (US 2006/0098203).

At page 9 of the Action, Claim 6 has been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kalveram in view to Paritsky *et al* (US 2003/0173507, “Parisky”).

Applicants submit that the above two rejections should be withdrawn because Kalveram is not prior art with respect to the present claims.

Kalveram was published on May 11, 2006, which is later in time than the December 16, 2004 international filing date of the present application. If an U.S. application is a National Stage of a PCT application, the international filing date of the PCT application counts as the U.S. filing date of that National Stage application. Accordingly, Kalveram is **not** prior art under section 102(a) with respect to the present application.

However, the PCT publication of Kalveram, WO 2004/048881, was published on June 10, 2004, which is earlier in time than the December 16, 2004 international filing date of the present application, and thus qualifies as prior art under section 102(a). Kalveram's §102(a) date of June 10, 2004 is later in time than Applicants' priority date of December 17, 2003.

To remove Kalveram as prior art under § 102(a) and to perfect their claim to priority, Applicants submit herewith a verified English translation of their priority document. Section 112 support for the present claims in the priority document is as shown in the following chart:

Present Claim	Support in Priority Document
1	Claim 1
2	Claim 2
3	Claim 3
4	Claim 4
5	Claim 5
6	Claim 6
7	Claim 7
8	Claim 8
11	Claim 11
12	Claim 12

In view of the above, Kalveram is not § 102(a) prior art with respect to the present claims. Reconsideration and withdrawal of the §§102/103(a) rejections based on Kalveram and Paritsky are respectfully requested.

At page 10 of the Action, Claims 9 and 10 have been objected to as being dependent upon a rejected base claim, but have been indicated to be allowable if rewritten in independent form.

Applicants submit that Claims 9 and 10 are patentable in their present form because Claims 1-3, from which Claims 9 and 10 depend, are patentable over the cited references, as discussed above.

Allowance is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

Hui Chen Wauters
Hui C. Wauters
Registration No. 57,426

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: June 23, 2009